

A NEW *SYRRHOPHUS* FROM MEXICO
(AMPHIBIA: LEPTODACTYLIDAE)

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ABSTRACT: The leptodactylid frog, *Syrrhophus nivicolimae*, is described and is apparently confined to the lower tropical montane forest of the Nevado de Colima, Jalisco, Mexico. Remarks on eggs, habitat, call, and meristic variation are included.

The discovery of an undescribed *Syrrhophus* from the Nevado de Colima, Jalisco, Mexico, provided the impetus for a study of the herpetofauna of this area. Specimens were obtained and observations made, in the three visits to Nevado de Colima (Webb and Michigan State University field party on July 24, 1963; Webb and Dixon on June 11, 1964; and R. W. Axtell, M. P. McKelvey and Webb on July 20, 1964).

The Nevado de Colima is a conspicuous topographic feature with a maximal elevation of approximately 14,200 feet. Four major habitats are recognizable: (1) tropical deciduous and thorn scrub forests at the lowest elevations; (2) lower tropical montane forest between elevations of 5,800 and 7,800 feet; (3) tropical montane forests to approximately 13,800 feet; (4) Alpine-like aspect at the highest elevation. Gadow (1908: 507-516) and Goldman (1951: 180-181) published general observations about the Nevado de Colima.

***Syrrhophus nivicolimae*, NEW SPECIES**

Figure 1

Holotype: LACM 3200, adult male from Nevado de Colima, six miles (airline) west of Atenquique, Jalisco, 7,800 feet; collected by Robert G. Webb on July 20, 1964.

Paratypes: LACM 3201-09, taken at the type locality on the same date as the type; LACM 3210-14, five miles west of Atenquique, 6,500 feet, collected by Robert G. Webb on July 24, 1963.

Diagnosis: *Syrrhophus nivicolimae* is a member of the western Mexico species complex that has an outer palmar tubercle smaller (usually much smaller) than the first supernumery tubercle of the fourth finger, just distal to the outer palmar. It may be distinguished from all western species of Mexican *Syrrhophus* by the mid-dorsal brown band extending from the rear of head to anus; a short, blunt, rounded snout; combination of an interorbital light bar, small snout-vent size ($M=20.4$ mm.) and large tympanum ($M=52.5\%$ of diameter of eye).

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Figure 1. Topotype of *Syrrhophus nivicolimae*, new species.

Description of Holotype: Adult male, snout short, somewhat rounded; loreal region slightly concave and almost vertical in outline; head relatively wide with small eyes; tibiotarsal articulation reaching to anterior edge of eye when leg is brought forward along side of body; inner metatarsal tubercle three to five times larger than outer one; skin of dorsum and limbs somewhat warty, warts are relatively small but visible to the naked eye; small tubercle on outer edge of wrist; tongue ovoid, as broad as long; choanae oval, hidden by maxillary when viewed from ventral aspect; tibia length 48.4% of snout-vent length; foot length 46.9% of snout-vent length; head length 36.1% of snout-vent length; head width 38.1% of snout-vent length; eyelid width 48.4% of interorbital distance; tympanum length 17.1% of head length; tympanum length 52.5% of

diameter of eye; length of digits, shortest to longest respectively, hand 1-2-4-3; foot 1-2-5-3-4; tips of outer two fingers expanded, truncate, twice the width of the narrowest part of digit.

Measurements in millimeters: Snout-vent length 19.4; foot length 9.1; tibia length 9.4; total leg length 29.0; forearm length 4.5; head length 7.0; head width 7.2; eye to nostril distance 2.0; greatest diameter of eye 2.3, of tympanum 1.2; internarial distance 2.0; interorbital distance 2.9.

Coloration in life: Ground color yellow-orange with a broad dark brown mid-dorsal band from rear of head to anus; lateral margins of mid-dorsal band well defined, in contrast to ground color; a dirty white interorbital bar bordered posteriorly by a dark brown crossband; loreal region with a dark brown (almost black) line from nostril through eye to arm insertion; tibiotarsal portion of leg with dark brown crossbands, one and one half times as narrow as the ground color interspaces; dorsal surface of the femur area without banding or spotting; a small black spot covering anus; forearm with dark brown crossbands; upper arm orange-red, without dark markings on dorsal surface; posterolateral surface of forearm with one large dark brown spot; belly translucent, dirty white; ventrolateral parts of belly lightly mottled with dark brown; posteroventral surfaces of foot dark brown, almost black, from tibiotarsal articulation to tip of longest toe.

Variation: The ground color varies from a gray through buff, pale yellow, orange-red to brown. In most cases the neck and arms are darker than the body and legs. The barring found on the tibia is often lacking on the femur. The interorbital light bar is present in all but one specimen, which has the dark crossband behind the light bar, and the light bar broken up into a series of small white spots. One specimen has a thin whitish line from snout to anus and from heel to heel, across the anus. The intensity of mottling along the ventrolateral margin of the belly varies from sparse to dense.

The average snout-vent length for males is 20.4 mm. ($R=19.0$ to 21.5). The only known female has a snout-vent length of 23.5 mm. The variation in ratios of the following measurements are expressed in per cent: tibia length/snout length, $M=44.9$ ($R=40.5$ to 48.7); foot length/snout-vent length, $M=42.6$ ($R=40.0$ to 47.1); head length/snout-vent length, $M=34.6$ ($R=32.6$ to 36.8); tympanum length/head length, $M=16.9$ ($R=15.4$ to 18.8); eye-lid width/interorbital distance, $M=53.5$ ($R=51.7$ to 57.1); tympanum length/diameter of eye, $M=52.5$ ($R=50.0$ to 59.0).

Habitat: *Syrhophus nivicolimae* is apparently confined to the lower tropical montane forest on the Nevado de Colima. Principal trees of this forest are oaks and pines, including the characteristic drooping-needle pine, locally called "pino triste." Poison ivy, bracken fern (*Pteridium*), pokeweed (*Phytolacca*), the herb *Eupatorium* and the shrub *Baccharis* are prominent species in the understory. The understory is often a near-impenetrable thicket.

The tropical lower montane forest is continuous from the Nevado de Colima to its sister peak to the south, the Volcan de Colima on the Jalisco-

Colima state line. Suitable habitat on the two volcanic mountains seems to be isolated, except perhaps to the south in Colima, by lowlands of thorn scrub.

Individuals of *S. nivicolimae* were not observed during the dry season (June 11), but were found calling on the ground and in shrubs to a height of five feet during the rainy season (July 20, 24). Their call is a single, rather high peep. Some individuals were found calling from fully exposed positions, but most made some attempt at concealment. One clutch of 12 eggs was laid by a captive female. The smallest and largest eggs of the clutch, respectively, were 5.3 and 5.7 mm. in diameter.

A species of *Tomodactylus* closely related to *T. angustidigitum* (currently under study by us) is also confined to the tropical lower montane forest. Both *Syrrhophus* and *Tomodactylus* are sympatric at about 7,800 feet. At higher elevations only individuals of *Tomodactylus* are found, whereas at lower elevations *Syrrhophus* occurs to the exclusion of *Tomodactylus*. Other amphibians and reptiles obtained in our visits to the tropical lower montane forest of Nevado de Colima are *Eleutherodactylus occidentalis*, *Anolis nebulosus*, *Sceloporus grammicus*, *Sceloporus* sp. (currently being studied by Webb) *Eumeces dugesi*, and *Rhadinaea taeniata*.

Relationships: *Syrrhophus nivicolimae* does not appear to be closely related to any of the western or eastern Mexican *Syrrhophus*. It is closest to *S. modestus* in snout-vent length and eyelid/interorbital distance ratio; to *S. leprus* and *S. rubrimaculatus* in foot/snout-vent length ratio; to *S. interorbitalis* in the presence of an interorbital light bar and head/snout-vent length ratio; to *S. pipilans* in tympanum/head length ratio and tympanum/eye diameter ratio. Duellman (1958) gives an account of the relationships of the above species and provides a table of meristic values for the species.

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